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CLINICAL APPROACH TO PRURITUS IN DOGS – LET'S GET BACK TO BASICS

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Hands up those who have seen an itchy dog during an evening surgery and sent it home on a combination of antibiotics and steroids after a fairly brief examination. Let's face it, with the time constraints of the average consultation, it's difficult to do what the typical dermatology textbook tells you to do – take a detailed general and dermatological history; perform a complete physical and dermatological examination; generate a list of differential diagnoses; perform the appropriate diagnostic tests to rule in or out the diagnoses; and then treat the conditions that have been diagnosed. With this lot in store, the antibiotic/steroid route becomes pretty tempting, especially when there's a fair bet that the animal will stop scratching and the owner will be delighted with your medical prowess.

But let's have a look at this approach in more detail and see where it's leading us. Table 1 shows the most common conditions that cause pruritus in dogs. How many of these conditions will be cured by a combination of antibiotics and steroids? Well, to cut to the chase, none. Clearly, those conditions caused by ectoparasites can be cured by some form of chemical warfare and antibiotics would not be helpful. Furthermore, in the case of demodicosis, the use of glucocorticoids is totally contra-indicated, regardless of how itchy the dog is.

Table 1 – Common causes of pruritus in dogs.

General Category	Specific disease
Ectoparasites	Flea bite hypersensitivity Scabies Cheyletiella dermatitis Demodicosis Trombicula autumnalis infestation Otodectes cynotis infestation Lice
Infectious agents	Superficial pyoderma *Malassezia* dermatitis
Allergies	Atopic dermatitis Food hypersensitivity

What about the infectious causes? We've got antibiotics in there and surely a bit of steroids wouldn't do any harm to help control the pruritus associated with the average pyoderma. After all, we're only talking about a quick shot followed by a few days of pills. Well, we're also in between a rock and hard place here, but it takes a little pharmacology and immunology to understand why. Let's imagine a typical scenario in which a dog receives a ten day course of antibiotics and steroids for a superficial folliculitis. During those ten days, a whole range of events occur that dampen down the dog's immune response to the unwelcome staphylococcus. However, these events include reducing the ability of neutrophils to get out of blood vessels to the sites where they are needed; reducing the ability of neutrophils to phagocytose and kill bacteria; inhibiting the function of T lymphocytes which are critical for gearing up a beneficial immune response; inhibiting the bactericidal action of monocytes and macrophages and reducing their ability to activate T cells; and inhibiting the function of complement which is important in dealing with bacteria. Furthermore, these effects do not stop instantly when the drugs are discontinued, leaving the dog hopelessly ill-prepared for life-after-antibiotics. In fact, the infection often returns worse after the antibiotics have finished than it was before. You might suggest, in defence, that the dog was actually covered with antibiotics during the course of steroids, so surely they will have dealt with the bacteria whilst the steroids took care of the inflammation? Unfortunately, antimicrobial drugs are just not that phenomenal, as anyone with a compromised immune system will tell you. As far as *Malassezia* dermatitis goes, it goes without saying that a fungal infection is not likely to be adequately treated with either antibiotics or steroids.

Surely, after all this bad news, the antibiotic/steroid combination comes into it's own when dealing with allergic diseases. After all, these dogs have an over-active immune system and are prone to developing secondary infections. That may be true, but unfortunately, the old combo still isn't the answer to our prayers. The infection side of the story has already been laid to rest above, and the same rules apply, even if the underlying cause is an allergy. As far as the steroids go, one simple dermatological fact drives a wedge through the whole argument – dogs do not grow out of allergies, and they do not resolve spontaneously. That means that some kind of life-long strategy is required if the condition is to be successfully managed. Looking at it this way, it's hard to see just what our tenday course of antibiotics and steroids is actually likely to achieve.

The whole problem associated with the use of antibiotic/steroid combinations is that pruritus control often follows a "roller-coaster" pattern. After superb initial results, the client returns because the problem has recurred. However, because the initial results were so good, the client (and vet) are more than happy to treat the problem again in the same way (the last treatment worked really well, Mr. Smith). This cycle of recurring pruritus and treatment can go on for years in some cases, often with more than one vet involved and a progressively disillusioned client.

For those of you still hanging in here, you're probably hoping that there must be some relief from this continual pounding. Well, there is another way to approach this frustrating problem, although when anyone tells you to change something that you've hung on to passionately for many years, it does require a leap of faith. It's about casting aside the "pruritus roller-coaster" once and for all, and embracing the "pruritus staircase."

The "staircase" approach involves a sequential set of diagnostic and therapeutic steps that will, if followed precisely, yield a high degree of success when dealing with canine pruritus (Figure 1). The beauty of this approach is that it can be fitted perfectly well into a series of routine-length appointment slots without compromising patient care in any way. To see how it works, let's go back to Table 1. Whenever a dog is presented with pruritus, all the conditions listed here should immediately flash up in your mind. The next hurdle is to accept the fact that pruritus is often multifactorial. The dog will often have more than one of the listed diseases at the same time, and each condition adds its weight to the overall level of itch. Your job is therefore to find out which of these conditions the dog doesn't have so that you can treat what remains. This may seem a little bizarre if you are used to assessing an animal's signs and deciding

what it does have, but you will reap the rewards of this approach later.

To start the "staircase" off, your job is to first make absolutely certain that the dog does not have any ectoparasites or infectious causes of pruritus. This may seem pretty obvious, but this is where mistakes are often made. The dog should be examined both grossly and microscopically for any evidence of ectoparasites. If you're lucky enough to find these beasties, you're on your way and the rest of these notes are not for you. What's more, if your patient has flea bite hypersensitivity or scabies, which can both be exquisitely pruritic, it is perfectly acceptable to provide symptomatic relief with glucocorticoids during the initial stages of parasiticidal treatment.

The real problems start when the preliminary diagnostic tests described above are negative. Relying on information derived from negative test results can catch out even the most experienced clinician. With the exception of demodex mites (which can be reliably found on skin scrapings) the other parasites can all be missed without resorting to a fourth modality – the specific therapeutic trial. A specific therapeutic trial should be performed in any itchy dog in which the history and clinical signs are compatible with flea bite hypersensitivity, scabies or cheyletiellosis. Furthermore, this is no time to show therapeutic timidness. Just because you haven't found the parasite does not provide an excuse for having a half-hearted stab at treatment. You need to head to the pharmacy and come back armed with the best you've got. If the dog gets better, you know that your suspicions were correct. Remember that if you throw antibiotics or steroids into this equation, you would still be no nearer when the dog was re-examined because you wouldn't know which treatment had been of most benefit.

After applying the above principles, you will have achieved one of three possible outcomes: the pruritus has resolved (the condition was caused by the suspected parasite); there has been a partial reduction in the level of pruritus (parasites were involved but the dog has another disease as well); or there has been no improvement in the level of pruritus (parasites were not involved). If you are faced with either of the second two options, you need to go down to the next step on the "staircase." This involves ruling out the presence of infectious agents. As with the parasites, there are pitfalls here ready to trap the unwary. You will have been told at veterinary school and in textbooks that staphylococcal pyoderma can be diagnosed on clinical examination alone (and this will have been backed up by beautiful pictures of papules and pustules to demonstrate the fact). This is indeed true, but some caution is warranted because the average case in your clinic is not like those pictures in the textbook. You have to look incredibly carefully to avoid missing this diagnosis - the papules may be so close together that the skin just looks red or there may only be occasional epidermal collarettes that are throwing off scales into the coat (look beyond the coat to the skin – can you see the rings of scale that betray the presence of the staphylococcal infection?).

If the dog has a superficial pyoderma, it needs to be treated correctly. An appropriate antibiotic needs to be chosen and used for a minimum of 3 weeks at full therapeutic doses based on the dog's body weight. In addition, topical therapy with a benzoyl peroxide or ethyl lactate shampoo is likely to hasten resolution of the lesions. If the pyoderma keeps coming back, you need to find the underlying cause, but that's a story for another day.

As we go down to the next step, we may come across *Malassezia* dermatitis. As this organism has only been recognised as a significant cause of skin disease over the last fifteen years, it can still be missed off the original differential diagnosis list. The overgrowth of budding yeasts can be identified by examining stained adhesive tape strips, and is relatively easily treated with topical or systemic anti-fungal therapy.

If you have adhered to the above strategies, you should now have a dog in which you can confidently state that parasites and infectious agents are not contributing to its pruritus (you may have already cured the dog). However, if this is not the case, the pruritus should at least have decreased from its original level. At this point, it is likely that the remaining itch is due to an underlying allergy (as long as the history and clinical signs seem consistent with this). It's now time to take a rather big step and rule out food hypersensitivity. This is a more complicated task than it sounds and the uninitiated would be well advised to refer to the reference listed at the end of this article before embarking on random diet changes.

With food allergy out of the way, it is usually possible to make a tentative diagnosis of atopic dermatitis (unless the dog has an unusual condition not included on our list). Remember that the vast majority of atopics will have secondary pyodermas and or *Malassezia* dermatitis and dealing with those will have already resulted in a significant improvement. Which of the last few steps are now taken will depend on a number of factors, especially the wishes of the client. However, the various long-term management options that are available can be divided into three general categories, each demanding a different level of commitment from the client and expense.

1. Perform an intradermal skin test (may need referral) or an allergen-specific IgE assay to confirm that the animal is atopic and to choose allergens for immunotherapy. However, even if this route is chosen, it is usually necessary to use options 2 or 3 to control the pruritus in the early stages of treatment.
2. Treat symptomatically, initially with a combination of antihistamines (try at least three different ones), essential fatty acid supplements and topical therapy. If the response is not complete, add in low dose glucocorticoids or cyclosporine.
3. Treat symptomatically with low dose glucocorticoids or cyclosporine.

You noticed. The steroids crept in there at the end. I admit it – I have to use them too. The key issue here is that once you've controlled all the other problems, the dose of steroids that is actually required to control the residual pruritus is much lower than that needed at the beginning (look at the graph and you'll see what I mean). You can forget injections, and often achieve the dermatologist's holy grail of low dose, alternate day prednisolone therapy. Surely, the extra effort and patience involved in pursuing this path has got to be worthwhile for that reason alone.

What if your patient continues to scratch despite your best efforts? I would check first to make sure you haven't missed anything. If not, you need to consider less likely, but possible, diagnoses such as dermatophytosis, contact dermatitis, intestinal parasite hypersensitivity or mycosis fungoides. If it's none of these, and you're stuck, I'd pick up the phone.

REFERENCE

1. Hill PB. Small Animal Dermatology: A practical guide to the diagnosis and management of skin disease in dogs and cats, Butterworth Heinemann.

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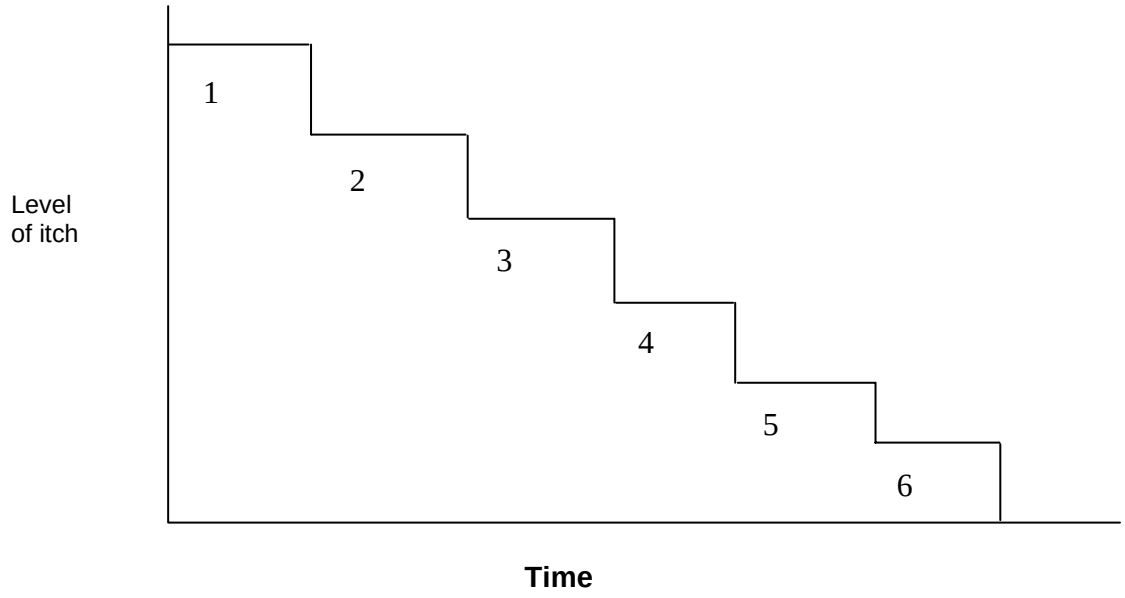

Figure 1 – The "staircase" approach to pruritus. The figure represents a complex case in which multiple factors are involved in the aetiology of the pruritus. Each step represents the successful elimination of a contributing factor. At step 1, the dog is treated for ectoparasites and there is a partial response. Steps 2 and 3 indicate the successful management of staphylococcal and *Malassezia* infections. Step 4 demonstrates a partial response to a restricted diet trial. By step 5, the dog is diagnosed as atopic and placed on antihistamines and essential fatty acid supplements. The residual pruritus in step 6 can be managed by allergen immunotherapy and/or glucocorticoids. Note that the amount of pruritus that remains will respond to lower doses of glucocorticoids than that required at the beginning. In reality, steps 1, 2 and 3 can often be combined as long as a specific diagnosis of each component has been made. Thankfully, the "staircase" is often steeper than this and many cases will have resolved before reaching step 6.